

AWARDS 2007 STORAGE

EXPERT'S REPORT

Although the prices of storage devices have come down while their specifications – and capacities – have increased, remarkably little else has changed since our awards last year. Blu-ray writers can now write up to 50GB of data on a single DVD-sized disc, but they're still too expensive and too slow for everyday use.

The biggest change is eSATA's popularity. It's a new interface for external hard disks that's even faster than USB and FireWire. Two of our award winners have eSATA ports.

But for the highest capacities and fastest speeds at the lowest prices, internal hard disks are still impossible to beat. Our overall category winner is a spacious Samsung internal hard disk at a low price – an upgrade any desktop PC user will find invaluable.

Alan Lu

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SAMSUNG SpinPoint T166-HD501LJ



Whatever you use your PC for, be it storing music, playing games or watching home movies, it's all too easy to run out of hard disk space. When this happens, you could trawl through your files deleting what you don't need, but this is risky. What if you accidentally trash some vital documents or a precious family snapshot? Fortunately, adding more hard disk space has never been easier or cheaper.

Samsung's 500GB SpinPoint T166-HD501LJ hard disk is a great choice when you need more space for programs, movies, music, photos and documents. It costs just 14p per gigabyte, yet it's the fastest internal 7,200rpm SATA hard disk we've seen. It topped all our tests, reading large files at 79.8MB/s and writing them at 76.5MB/s. It read small files at 28.3MB/s and wrote them at 12MB/s.

The SpinPoint uses the latest SATA 300 interface, so if your PC doesn't have a SATA connector on its motherboard then you'll have to invest in a SATA PCI card, which costs around £15. This is a worthwhile investment, though, since PATA – SATA's slower predecessor – is slowly being phased out by motherboard and hard disk manufacturers. The SpinPoint will still work at the same speeds when plugged into a slower SATA 150 connector, so there's no need to upgrade if your motherboard already has spare connectors of this type.

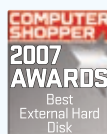
Since the SpinPoint uses thin and flexible SATA cables, it's easier to install than a disk that uses the thicker and bulkier PATA cables. External hard disks

are, of course, even easier to install and eSATA external disks are as fast, but none is as cheap as this disk.

In practice, our tests have shown that the SpinPoint is still noticeably quicker than an eSATA disk, such as LaCie's d2, the winner of our Best External Hard Disk award (see below). The SpinPoint managed 76.26MB/s overall in our large files tests and 20.15MB/s overall in our small files tests. By comparison, LaCie's d2 managed 66.92MB/s overall in our large files tests and 17.85MB/s overall in our small files test. Clearly, if you cannot afford to wait around while your work is copied to a disk, the SpinPoint is faster than the d2.

It's rare to come across a flawless product like Samsung's SpinPoint T166-501LJ. It's cheap, yet it's also the fastest internal 7,200rpm 3½in SATA hard disk we've seen so far. Internal hard disks may not be as glamorous as Blu-ray or HD DVD writers, but they are far more affordable and useful. The SpinPoint T166-501LJ is a deserving winner of our Best Storage Product award.

3½in INTERNAL HARD DISK 500GB capacity, 465GB formatted capacity (NTFS), SATA 300 interface, 7,200rpm spindle speed, 16MB cache **PART CODE** HD501LJ **LATEST PRICE** £67 inc VAT from www.dabs.com **DETAILS** www.samsung.com **FULL REVIEW** Jul 2007



LACIE d2 eSATA II 3Gbits Hard Drive 500GB

LaCie's d2 has a reassuringly heavy metal case, and it's the only external hard disk we've seen that solely uses an eSATA interface. Its excellent performance almost matched that of an internal SATA 300 disk; it's much faster than a USB or FireWire 400 disk and quicker than most FireWire 800 disks. It managed 66.9MB/s overall in our large files tests and 17.9MB/s in our small files test.

If your computer doesn't have an eSATA port, adding one isn't difficult or expensive. A £12 PCI backplate allows you to connect the d2 to one of the internal SATA ports on your motherboard.

The d2 is a very fast external hard disk and is a great example of the potential speed benefits of eSATA.



EXTERNAL HARD DISK 500GB capacity, 465GB formatted capacity (NTFS), eSATA **PART CODE** 300976EK **LATEST PRICE** £96 inc VAT from www.expansys.com **DETAILS** www.lacie.com **FULL REVIEW** Sep 2007



LG GSA-H55N

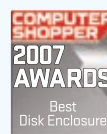
LG's GSA-H55N DVD writer allows you to password-protect your DVDs before burning them using Ahead's Nero disc-writing software. Files on such discs can't be opened without your password, but they are still visible in Windows Explorer with their thumbnails intact.

We were pleasantly surprised by the fast disc-writing speeds. The GSA-H55N doesn't match its stated write speeds for either single- or double-layer DVDs, but it's still one of the fastest DVD writers we've seen in the past year. Writing a full 4.7GB password-protected DVD took only a few seconds longer than a regular DVD.

The GSA-H55N is a fast, affordable DVD writer and wins the Best DVD Writer award.



INTERNAL DVD WRITER 20X DVD-R, 20X DVD+R, 6X DVD-RW, 8X DVD+RW, 10X DVD-R DL, 10X DVD+R DL, 12X DVD-RAM, 48X CD-R, 32X CD-RW **PART CODE** GSA-H55N **LATEST PRICE** £29 inc VAT from www.scan.co.uk **DETAILS** www.lge.com **FULL REVIEW** Oct 2007



RAIDSONIC Icy Box IB-266StUSD-B

If you've upgraded your notebook's 2½in SATA hard disk, you can put your old disk to use inside an external enclosure. The Icy Box looks sleek, feels sturdy and is easy to disassemble.

It also has an eSATA port and managed an average of 32.3MB/s in our large files test and 10.2MB/s in our small files test – quicker than the USB interface. If your PC doesn't have an eSATA port, the Icy Box comes with a docking station that fits inside a spare 3½in bay inside your PC and plugs into a spare SATA and Molex connection; you simply pull the drive out when you want to take it with you.

This is a genuinely useful feature and, combined with the easy assembly, it's a winner.



SATA HARD DISK ENCLOSURE Takes one 2½in SATA hard disk, USB Hi-Speed and eSATA interfaces **PART CODE** IB-266StUSD-B **LATEST PRICE** £24 inc VAT from www.lambda-tek.com **DETAILS** www.raidsonic.de **FULL REVIEW** Jul 2007

BUFFALO TeraStation Live 2.0TB

★★★★

£604 inc VAT

Buffalo's TeraStation Live has a massive capacity of 2TB, or around 2,000GB, but a low cost of just 29p per gigabyte. It houses four 500GB hard disks that can be configured as one of four types of RAID.

As a RAID 0 array – where files are broken up across all disks – the full 2TB of storage space is available, but if any one disk should fail all your data will be lost. Configured as a RAID 5 array, the TeraStation will provide around 1.5TB of usable space, as a disk's worth of storage is used for data protection. If one disk should fail then all your data would still be safe.

Alternatively, the TeraStation can be configured as a pair of independent RAID 1 arrays. Each RAID 1 array consists of two 500GB disks with the contents of one disk mirrored on the other so that if one fails, all your data will be preserved. Each array would provide only 500GB of space, though. When configured as a RAID 10

array, the TeraStation mirrors the contents of one RAID 1 array on the other, providing another layer of protection should a disk fail.

As our results below show, the TeraStation is quick at copying large files but slow transferring small files when configured as RAID 0. This pattern repeated itself, no matter what the RAID type. As a RAID 5 array, the TeraStation copied large files at 15.1MB/s and small files at 1.3MB/s. As a RAID 1 array, it managed 11.8MB/s and 1.7MB/s, and as a RAID 10 array, 14.5MB/s and 1.5MB/s.

All the hard disks are mounted in removable trays so they can be easily replaced in the event of disk failure, while a lockable front panel will prevent casual thieves from stealing a disk. An LCD screen displays useful information such as the TeraStation's current IP address and RAID configuration. Setup is straightforward thanks to the clean web configuration interface, although the screen for creating different groups



of users with differing levels of access to certain folders is poorly organised and confusing.

We had no trouble using the TeraStation to share a USB laser printer and the contents of a USB flash drive over the network. The TeraStation is also one of the few NAS devices we've seen with an iTunes server that actually works. We could play back music – even DRM-protected tracks bought from Apple's iTunes Store – using the latest version of iTunes.

However, being able to access all your files from any computer is of little use if your NAS is so slow that you have to leave file transfers running overnight. While the TeraStation is well designed with many useful features, we found that its performance left us wanting more.

Alan Lu

SUMMARY

- ✓ Low cost per gigabyte
- ✓ Useful features
- ✗ Slow small files performance

NETWORK-ATTACHED STORAGE 2TB
capacity, 1860GB formatted capacity (RAID 0), 4x 500GB hard disks, 10/100/1,000Mbit/s Ethernet, two USB2 ports, UPnP media, iTunes, print, USB disk, FTP servers
PART CODE HS-DH2.0TGL/R5
SUPPLIER www.broadbandbuyer.co.uk
01908 888327
DETAILS www.buffalo-technology.com

PERFORMANCE (see page 62)



COOLER MASTER X Craft 360

★★★★

£35 inc VAT



MACALLY MAC- TB-M120

★★★★

£84 inc VAT



Spare internal hard disks can be given a new lease of life as external disks once fitted inside a hard disk enclosure. Many are tricky to dismantle, though, and it's often fiddly to install a disk and reassemble. Cooler Master's X Craft 360 and Macally's MAC-TB-M120 are far more user-friendly than other enclosures we've seen. They also both have eSATA ports.

The X Craft has an attractive, glossy black appearance and you don't even need a screwdriver to fit a disk. It's the simplest process we've seen. A sliding switch opens a door that reveals the empty drive bay, into which a 3½in SATA hard disk can be slotted. Once the door is closed, it's ready for use. If you need to change the hard disk, opening the door will automatically eject the disk inside.

We fitted the X Craft with a 320GB Samsung hard disk. When connected over USB, speeds were in line with what we'd expect from a USB hard disk. Similarly, small files were copied about as fast as we'd expect when using the eSATA interface. However, when transferring large files, it was around 10MB/s slower than other eSATA enclosures we've tested with the same disk. It's also a little noisier than other eSATA enclosures we've seen, but not enough to be distracting in a quiet room.

Macally's MAC-TB-M120 silver enclosure feels sturdy, although it isn't quite as eye-catching as the X Craft. The M120 isn't as easy to take apart, either, since there are several screws that need to be removed. It's not tricky, though, thanks to the well-illustrated installation guide. The M120 is also quieter than the X Craft because the rubber-mounted screws holding the hard disk in place absorb vibrations.

The MAC-TB-M120 has a FireWire 800 port, as well as eSATA and USB interfaces. You can also plug it into a FireWire 400 port using the included adapter cable. We tested the M120 with the same Samsung hard disk as the X Craft and its speeds over FireWire 400, 800 and USB were in line with what we'd expect. However, like the X Craft, the M120 was around 10MB/s slower over eSATA than we've seen from other enclosures when copying large files.

Both the X Craft and the MAC-TB-M120 are attractive and easy to assemble. But unless you need FireWire 800, the MAC-TB-M120 is difficult to recommend as it's almost as expensive as a 500GB external hard disk. Although the X Craft isn't as fast or as quiet as other hard disk enclosures we've seen, its simple method for installing a disk still makes it a useful and desirable product.

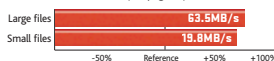
Alan Lu

COOLER MASTER SUMMARY

- ✓ Effortless assembly
- ✓ Attractive
- ✗ Disappointing eSATA performance

3½in HARD DISK ENCLOSURE Takes one 3½in SATA hard disk, eSATA and USB Hi-Speed interfaces
PART CODE RX-360
SUPPLIER www.yoyotech.co.uk
DETAILS www.coolermaster.com

PERFORMANCE (see page 62)



MACALLY SUMMARY

- ✓ Straightforward installation
- ✓ FireWire 800 port
- ✗ Disappointing eSATA performance

3½in HARD DISK ENCLOSURE Takes one 3½in SATA hard disk, eSATA, FireWire 800 and USB Hi-Speed interfaces
PART CODE MAC-TB-M120
SUPPLIER www.allpcstuff.co.uk
DETAILS www.macally-europe.com

PERFORMANCE (see page 62)

